Complete Summary

GUIDELINE TITLE

Progressing toward tuberculosis elimination in low-incidence areas of the United States.

BIBLIOGRAPHIC SOURCE(S)

Centers for Disease Control and Prevention (CDC). Progressing toward tuberculosis elimination in low-incidence areas of the United States: recommendations of the Advisory Council for the Elimination of Tuberculosis. MMWR Recomm Rep 2002 May 3;51(RR-5):1-16. [24 references]

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Tuberculosis (TB)

GUIDELINE CATEGORY

Management
Prevention

CLINICAL SPECIALTY

Infectious Diseases
Preventive Medicine

INTENDED USERS

Public Health Departments

GUIDELINE OBJECTIVE(S)

- To inform federal, state, and local public health officials, health-policy makers, and the general health-care community about the unique challenges of tuberculosis (TB) control and about the roles each can play to ensure progress toward elimination in those areas where the disease is becoming increasingly uncommon
- To present recommendations for sustainable tuberculosis control programs and strategies in low-incidence states or regions

TARGET POPULATION

The general population in low-incidence tuberculosis (TB) states or regions in the United States

INTERVENTIONS AND PRACTICES CONSIDERED

Management/Prevention

1. Working creatively to ensure the essential components of tuberculosis control
    - Planning and policy development
    - Finding and managing suspected and confirmed tuberculosis cases
    - Finding and managing latent tuberculosis infection
    - Providing laboratory and diagnostic services
    - Collecting and analyzing data
    - Providing consultation, training, and education to health care providers and decision makers
2. Raising the priority of prevention
3. Implementing a tuberculosis elimination plan
4. Making tuberculosis elimination in low-incidence areas a national priority

MAJOR OUTCOMES CONSIDERED

- Impact of tuberculosis (TB) control strategies on incidence of tuberculosis
- Cost and efficiency of tuberculosis control programs/strategies

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Not stated

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Not stated

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not applicable

METHODS USED TO ANALYZE THE EVIDENCE

Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Not stated

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

<u>Recommendations for Tuberculosis Programs in Low-Incidence Areas</u>

The Advisory Council for the Elimination of Tuberculosis (ACET) makes the following recommendations for sustainable tuberculosis (TB) control programs and strategies in low-incidence states or regions. Although these recommendations are applicable to any state, they are designed specifically to address the special challenges encountered by programs in low-incidence areas. Therefore, ACET stresses innovation for meeting these challenges, with the understanding that the best solutions will be unique to each state and locality. As observed by the Institute of Medicine (IOM) Committee on the Elimination of Tuberculosis, the

implementation of some recommendations will not be feasible without additional resources.

Work Creatively To Ensure the Essential Components of Tuberculosis Control

The Centers for Disease Control and Prevention (CDC) has recommended six essential components for TB prevention and control. Sufficient capability in each component is necessary for progress toward TB elimination. Every state health department needs the basic framework for a TB control program that includes all six components, and a designated program director. Following are suggestions for low-incidence states that can help them meet the challenges of implementing all components of a TB control program. These suggestions are made with an understanding that higher-incidence programs will later be addressing the same challenges.

Planning and Developing Policy

The foundation of a state TB control program is its legal mandate to carry out necessary specific activities (e.g., surveillance, treatment, investigations, isolation of contagious patients). However, some states have outdated legal codes for communicable diseases, which can hamper the program. In low-incidence states, where the health department might not have personnel with the expertise to draft the elements required in updated legislation, updated legislation from neighboring states can serve as templates, and local chapters of American Lung Association (ALA) can provide technical assistance and legal advocacy.

A state TB control policy manual should be drafted in consultation with an advisory council of TB experts and should be updated at least every 2 years. Although programs in low-incidence states can assist each other by sharing manuals for use as templates, each program can anticipate a need for state-specific policies and procedures because of differences in epidemiology, state administrative structure, and resources. Policies in the manual should cover the following topics: administration of the program; training; reporting practices and surveillance; program evaluation; laboratory testing for mycobacteria; case finding, holding, and management; treatment of persons with TB disease and latent TB infection; contact investigations; targeted testing for latent TB infection; and standard responses to foreseeable adverse situations (e.g., uncooperative patients, outbreaks, and multidrug-resistant TB).

Each state should also have a TB elimination plan designed for local circumstances. In low-incidence states, the plan should emphasize the more challenging elements: maintaining a state TB program with sufficient resources to address the essential components, finding and containing outbreaks in regions lacking personnel with TB expertise, and responding to an influx of persons with increased TB risk, such as immigrants from high-prevalence countries. The elimination plan should include strategies for addressing specific epidemiologic features of TB in the state, including the needs of specific groups at risk for TB. For example, in some western states, where one third or more of the TB patients are American Indian, TB control services require an approach adapted to cultural and jurisdictional distinctions, ideally, one that has been developed in collaboration with tribal health authorities.

Finding and Managing Suspected and Confirmed Tuberculosis Cases

A state TB program, through its consultants, can provide the medical expertise that might be lacking in private and public health-care facilities in low-incidence states. However, this can only be done when suspected cases are found and a referral is made to the state public health department. General awareness of TB as a potential cause of cough-illness is difficult to sustain if the disease occurs rarely. Delayed case detection at the local level is a potential factor contributing to TB transmission (see Outbreaks). In addressing this difficult challenge, the state program should maintain a listing of local persons knowledgeable about TB in its policy manual. The list should not be regarded as static but should be updated annually because of provider turnover.

Training should be targeted to expand the diagnostic knowledge of primary care providers, and it should be focused on the localities with gaps in expertise. Many state health departments offer conferences and outreach initiatives to inform local health-care providers about public health issues, and the TB program can take advantage of these events for delivering and updating messages in the context of continuing education.

Tuberculosis case managers face particular challenges when patients are under the care of private medical providers who are unfamiliar with the potential contributions and the overall role of the health department. If private providers are informed about the TB program through state-sponsored outreach and training programs, they will have a better understanding of the current practices and the services offered by the health department even before they encounter suspected cases. One option is to engage private providers in a case management team (see Box 3 in the original guideline for an example from the state of New Mexico). A management team allows the TB program to monitor the progress of the patient, train the provider, and promote the services of the program by building rapport between public and private sectors. Private providers who otherwise would reject directly observed therapy for their patients might reconsider this option after learning about the services offered by the health department.

Prevention: Finding and Managing Latent Tuberculosis Infection

Tuberculosis controllers in low-incidence states have encountered crucial challenges in the transition from managing cases to preventing cases. Expertise for contact investigations is lacking in some local areas, which contributes to incomplete contact tracing and treatment and, eventually, to the occurrence of TB outbreaks. Tuberculin skin testing skills, even in health departments, have been lost. Local health departments do not have the staff required for monitoring completion of therapy. Private medical providers might be reluctant to treat latent TB infection because of uncertainty about the recommendations and concerns about adverse effects of treatment. Finally, for targeted testing projects, the populations involved can be widely dispersed, which makes the projects less feasible.

Experience in responding to TB outbreaks has shown that innovative methods for contact investigation can be designed to fit unusual situations by forming partnerships, for example, among local communities, local health-care providers,

academic medical centers, local and state health departments, and national public health agencies. Flexible methods and the creative use of nontraditional, supplemental resources are required to maintain response capability. Even before outbreaks occur, policymakers must be made aware of gaps in the resources and infrastructure required for response capability.

Targeted-testing activities for finding latent TB infection can be inefficient and expensive if low-risk persons are included because large numbers must be tested and treated to prevent each TB case. Therefore, TB programs in low-incidence states should restrict targeted-testing activities to well-delineated projects (see Box 4 in the original guideline for an example from the state of Maine), ones that have potential for efficiency, and ones that have feasible implementation and evaluation components. General factors that improve efficiency are access to the target population, a high prevalence rate of latent TB infection, a high risk of progression to disease in infected persons, and methods to ensure completion of therapy. Targeted-testing projects must be evaluated for their ability to meet objectives for finding latent infection and ensuring that patients are completely treated. Projects that do not meet objectives should be revised, or they should be discarded in favor of more promising projects. Projects that do meet objectives can be expanded or adapted to other settings.

Providing Laboratory and Diagnostic Services

The vital functions provided by the state TB laboratory require substantial fixed investments in facilities, equipment, and personnel. The costs of maintaining the laboratory do not decrease even when the TB burden becomes very low. When proficiency is at stake, the TB laboratory should assess the possibility of certain tests and functions being carried out at contract laboratories or interstate regional public health laboratory reference centers without degrading the quality of the services. Regional centers have proved satisfactory for deoxyribonucleic acid (DNA) fingerprinting of Mycobacterium tuberculosis isolates, and some state laboratories have arranged for susceptibility testing of isolates through contracts with out-of-state laboratories.

Rapid, reliable communication of laboratory results is a crucial requirement for relocating tests and functions to other sources. Most low-incidence state TB programs have difficulty in assuring reporting from laboratories if private medical providers and hospitals send specimens to local hospital laboratories or to out-of-state contract laboratories for testing. This situation is similar in the remainder of the country. It puts the TB program at a disadvantage because these laboratories might fail to report critical results promptly to the health department. They also might discard M. tuberculosis isolates before subsequent testing, such as DNA fingerprinting, can be done. Some states have found solutions to this difficulty that might provide models for other low-incidence areas. In Minnesota, a public health regulation now requires that specimens for TB testing be split, with half of each specimen sent to the state TB laboratory. A different approach is taken in Wisconsin, where the director of the state TB laboratory leads a consortium of directors of TB laboratories located at hospitals throughout the state. This innovative system allows the state program to promote quality assurance and good public health practice through a collaborative effort.

Collecting and Analyzing Data

Data collection is the starting point for both planning a strategy and evaluating a current program. In low-caseload, low-incidence states data collection is often hindered by the scarcity of public health personnel at the local level and the challenges of training these personnel in the methods of systematic and accurate data collection. State TB programs can ease the burden at the local level by limiting requirements for data collection to the minimum needed for assessing epidemiology and program activities. At the state office, the TB program needs an epidemiologist to participate in the analysis and interpretation of results submitted by the localities. Because most TB programs in low-incidence states do not have epidemiologists assigned full-time, the health department should provide part-time support from within the health department or through a contract. This epidemiologic review could also be addressed through interstate regionalization; this option should be studied for its potential to increase capacity.

For low-caseload, low-incidence states, the annual case incidence is generally such that single-digit changes represent large relative shifts; therefore, analyses of yearly trends are inconclusive. The averaged changes over longer periods (e.g., 5-year spans) might be more informative, but these results are less useful for immediate assessments of active problems. Under these circumstances, epidemiologic and programmatic insight can be derived from an ongoing systematic review of anomalous or special cases. Examples include investigations of TB cases with the following features: patients <15 years old; drug-resistant M. tuberculosis isolates; extensive or advanced TB disease, which is suggestive of delays in diagnosis; or deaths before patients complete treatment. Sentinel criteria such as these can prompt case reviews as part of program management.

Providing Consultation, Training, and Education

Education and training about TB are essential for sustainable control programs. Training should be directed not only to health-care providers but also to decision makers, especially those who influence health-education curricula, and to the public. All these groups should be kept aware of TB, the goal of elimination, and the means to achieve the goal.

TB controllers in low-incidence states cite consultation, training, and education as both their most important functions and their biggest challenges. Training and education in particular are crucial for maintaining provider competence in both the public health and private medical care sectors. Providers in public health need training to stay current with new guidelines for diagnosis and treatment and maintain mastery of program management. Providers in private practice and other settings outside of health departments need training so they will "think TB" in the first place and become familiar with the advantages of collaborating with the health department. Typically, these providers keep full schedules and are occupied with many other health problems more prevalent than TB. Enticements, such as guest speakers, and incentives, such as continuing education credits, can gain their interest and participation.

Perhaps the greatest difficulties that low-incidence states encounter in the area of training are in obtaining funds and time to travel. When working with private medical providers in particular, the most effective means for building rapport is to visit localities routinely and meet with providers. In states with small health departments, this rapport pays dividends for years, and it can establish some

providers as consultants who assist the TB program. State policymakers need to be informed about the essential role of travel, especially in areas with minimal local expertise. If travel funds are restricted despite the need, the TB program should combine tasks, including training, into occasional trips and should take advantage of the most effective media for long-distance communications (see Box 3 in the original guideline document).

Personnel in local health departments are likely to require cross training for their many tasks. The state TB program should couple its training activities with those of other programs as often as possible to conserve resources. However, new workers in the TB program should receive TB-specific training that prepares them for all aspects of program operations and case management. All public health personnel who provide TB-related services require periodic refresher courses, regardless of whether TB is their main responsibility.

Tuberculosis training is another activity that can be explored for interstate regionalization; this approach has already been implemented in some areas (e.g., the course on TB diagnosis and treatment at the Denver National Jewish Center for Immunology and Respiratory Diseases). Regional TB controllers' meetings are another vehicle for training updates. Drawbacks of the current regional approaches to training are that participants have to travel and that only providers who already have a role in TB are likely to participate.

The three CDC-funded National Tuberculosis Model Centers, located in New Jersey, California, and New York, consolidate treatment and training expertise and offer training curricula, course materials including videotapes, and technical assistance. The training materials are offered at a nominal fee, and their consultation is provided at no cost. The range of their services is listed on their Internet sites.

- New Jersey Medical School National Tuberculosis Center
- Francis J. Curry National Tuberculosis Center (California)
- Charles P. Felton National Tuberculosis Center (New York)

Raise the Priority of Prevention

For programs in low-incidence states to achieve more rapid progress toward elimination, some resources for TB control will have to be directed to TB prevention activities. The higher-priority prevention activities, specifically finding and treating recently infected contacts of contagious TB patients, can turn into long-term, labor-intensive commitments, as shown by the outbreaks described earlier. The intensity and duration of these outbreaks demonstrate the need for the availability of public health personnel who are able to devote a substantial fraction of their time to TB control over a period of months to years.

Gaps in contact evaluation and treatment are a particular problem that can be overcome by a system of "case management" adapted from the standard case-management plans designed for TB patients. Directly observed therapy for latent TB infection can be undertaken where feasible, such as in places of employment, schools, and other institutional settings, especially if the infected contacts have additional risk factors for active TB.

Undertaking prevention activities requires negotiation with policymakers and support from partners to anticipate the eventual increases in the relative cost of prevention as TB becomes rarer. An advantage of taking up the cause of prevention is that it increases the visibility of the TB program and demonstrates a need for resources. Inversely, the long-term costs of failing to raise prevention as a priority issue are not only a delay in reaching elimination but a further decrease in resources as active cases become rarer.

Implement a Tuberculosis Elimination Plan

See "Description of Implementation Strategy" field in this summary.

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is not specifically stated for each recommendation.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

In low-incidence states or regions, where tuberculosis (TB) has become a "rare" disease, the opportunity exits to take decisive steps to eliminate it and to make pioneering contributions to tuberculosis elimination nationwide by inventing and testing the novel strategies recommended in these guidelines.

POTENTIAL HARMS

Not stated

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

Implement a Tuberculosis Elimination Plan

An elimination plan is the conceptual basis for all tuberculosis (TB) program activities because it lays out the short- and long-term tasks, and it provides a common language for communicating with strategic partners. Low-incidence states, in particular, need to consider how an elimination plan can attract the attention of the public and policymakers who might believe that TB is no longer a public health threat. An effective area for emphasis is the disparity of TB incidence

rates between social groups with high and low economic status. This illustrates that TB is not only an issue of public health but also one of social justice.

An elimination plan should address, on an individual state level, the unique challenges to good tuberculosis control in low-incidence states (see discussion in "Major Recommendations" section) and should capture all of the recommendations listed in the section "Work Creatively to Ensure the Essential Components of Tuberculosis Control" in the Major Recommendations section. The plan should integrate these elements into a strategy that fits local and regional circumstances and should provide interim objectives for assessing implementation of the plan and its effectiveness.

Make Progressing Toward Tuberculosis Elimination in Low-Incidence Areas a National Priority

The Advisory Council for Elimination of Tuberculosis (ACET) recommends that the nation help low-incidence states to eliminate TB. Doing so now invests in the future of all TB programs because those states not currently at the low-incidence level will be able to build on the experience of those that are. The current low-incidence states have the opportunity to test novel strategies for partnerships, funding, communications, education and training, and regionalization. An investment of national TB resources will benefit TB elimination in other parts of the country.

Roles and Responsibilities

Local and state health departments have the most important role in contributing to the core components for TB control, and most recommendations in the guideline document are directed toward those agencies. The federal government plays a central coordinating role in TB control, and many other agencies and associations can help, especially those working with groups most at risk for TB. The specific contribution of these organizations in complementing state and local TB control efforts are described in the original guideline document.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Staying Healthy

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Centers for Disease Control and Prevention (CDC). Progressing toward tuberculosis elimination in low-incidence areas of the United States: recommendations of the Advisory Council for the Elimination of Tuberculosis. MMWR Recomm Rep 2002 May 3;51(RR-5):1-16. [24 references]

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2002 May 3

GUIDELINE DEVELOPER(S)

Centers for Disease Control and Prevention - Federal Government Agency [U.S.]

SOURCE(S) OF FUNDING

United States Government

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FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

This is the current release of the guideline.

An update is not in progress at this time.

GUIDELINE AVAILABILITY

Electronic copies: Available from the Centers for Disease Control and Prevention (CDC) Web site:

- HTML Format
- Portable Document Format (PDF)

Print copies: Available from the Centers for Disease Control and Prevention, MMWR, Atlanta, GA 30333. Additional copies can be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402-9325; (202) 783-3238.

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

None available

NGC STATUS

This NGC summary was completed by ECRI on September 30, 2002.

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